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ABSTRACT

Compared to other children, Mexican-American children seem less responsive in test-taking and classroom situations. This behavior may be due to a generalized tendency to be conservative risk-takers. This study investigates aspects of this problem by testing four hypotheses: (1) that Mexican-American preschoolers would take fewer chances on a risk-taking test than their Anglo-American or Negro peers, (2) that this inter-group difference would increase as the material value of the reward (candy, rather than praise) increased, (3) that fewer chances would be taken following failure than following success, and (4) that boys would take more chances than girls, regardless of ethnicity or reward. The subjects, 60 Negro, 79 Mexican-American, and 25 Anglo-American Head Start children, were all given a risk-taking task developed for this study. The subjects were assigned on a stratified random basis to one of three treatment groups based on reward: beads, candy, or verbal praise. Analysis of the data showed no significant differences between ethnic groups, sexes, treatments, or for effects of failure and success. However, as predicted, Mexican-Americans took significantly fewer chances with candy reward, while Negro and Anglo-Americans took fewer chances with bead and praise reward. (MH)

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RISK-TAKING BEHAVIOR IN PRESCHOOL CHILDREN FROM THREE ETHNIC BACKGROUNDS

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CHAPTER 1

INTRODUCTION

In recent years there has been an increased interest in the school performance and achievement of children from disadvantaged backgrounds. The high rate of educational failure in this group is a subject of much concern to educators and to others who have become more aware of the need to interrupt the cycle of poverty. Investigators have been examining this failure in a variety of ways (Bereiter, 1966; Deutsch, 1963, 1967; Reissman, 1962) in order to isolate some of the factors susceptible to remediation.

There is general agreement that the culturally deprived or disadvantaged child comes to school as an alien, part of a group whose members differ significantly in a number of ways from that of the model of the public school. The lower-class child typically lives in a crowded, noisy home, where he is not motivated to match the characteristics admired in the public schools. Here the model child is highly verbal, articulate, school-achievement oriented, characteristics which are not particularly valued in the lower-class child's culture. School then becomes an area of rejection and even threat.

The lack of school achievement has been most prevalent in groups who differ from iddle class white children in ethnic membership as well as social class. The role played by ethnicity in the development

of social attitudes has been the subject of study by a number of investigators. For example, Clausen and Williams (1963), in their discussion of the sociological correlates of behavior, cite such generalized variables as compliance vs. assertion as part of the cultural socialization process differentiating societies. Madsen (1967, 1969) compared Mexican rural poor, Mexican urban poor, and Mexican middle class in one study, and Mexican-American, Negro, and Anglo-Americans in another study, on the dimension of cooperation-competition and found ethnically based differences. Wasserman (1969) in a comparison of Mexican-American, Negro, and Anglo preschool children, found ethnically determined differences in the value placed on success.

Ethnicity has important impact on learning styles, too. Lesser, Fifer and Clark (1965) compared two SES levels of four ethnic groups, Negroes, Puerto Ricans, Chinese, and Jews on patterns of mental abilities; they found that ethnic group membership differences do produce significant differences in both absolute level and patterns of mental abilities. Hertzig, Birch, Thomas and Mendez (1968) compared lower-class Puerto Rican children with middle-class Anglo children on response patterns in a cognitive task and found differences related to ethnicity. The evidence is clear that four-year olds have already developed definite patterns of learning, and have well-defined self-images embedded in a social context.

One important behavioral manifestation of this difference is in the area of responding both in test situations and in

classroom teacher-child interactions. Mexican-American children seem to be less apt to speak up and answer questions when they are uncertain of the correct response, whereas Negro and Anglo-American children volunteer responses freely whether or not they know the answer. This hesitancy of the Mexican-American child may be a characteristic type of behavior generalized to all risk taking situations, related to motive to avoid failure.

The area of motive or lack of motive to achieve is one of recurring interest to investigators (Atkinson, 1957, 1958, 1964; McClelland, 1953, 1958, 1965; Crandall, 1960, 1963). McClelland (1958) measured need achievement and risk taking in young children and found that children with high need achievement tend to take moderate risks while children with low need achievement prefer either very safe or very speculative enterprises. Atkinson concurs (1957) and relates motive, expectancy, and incentive, in a discussion of the relationship between the motive to achieve and the motive to avoid failure and performance. His conclusions are that persons in whom the achievement motive is stronger would avoid intermediate risk and prefer either very easy and safe tasks or very difficult and speculative tasks.

When a child approaches a new task or situation, there is an element of risk. For the disadvantaged child, school, with its set of values so different from his, appears threatening, involves risks. The child ethnically different from the dominant white middle-class may well experience school learning as a continuously risky situation, one which is fraught with the

possibility of increased devaluation of self-image. Kogan and Wallach (1964) suggest that risk-taking is an enduring personality characteristic which determines the behavior of individuals in many varied situations. Whether a child takes a risk or not is clearly dependent on what is at stake. It is clear, too, that the incentives present modify performance. Furthermore, it is evident that there is a relationship between the nature of reward and learning (Abel, 1936; Terrell and Kennedy, 1957; Fischer, 1963). Whether this would be so for risk-taking needs to be studied. The central problem of this investigation was to find out the nature of the role played by ethnicity in risk-taking and to explore the relationship of various rewards to this factor. In the present investigation, it was assumed that low achievement and unwillingness to take risks are related and consequently the study focused on risk-taking behavior. A major goal was to throw light on this relationship so that the disadvantaged child would be helped in school.

CHAPTER 2

REVIEW OF RELATED LITERATURE

The development of a risk-taking style has complex antecedents. Relevant literature will be explored in this chapter in order to examine some of these antecedents. Since risk-taking style operates within a motivational context, a knowledge of the parameters of this context is needed in order better to understand this enduring personality characteristic.

Of the five parts of this chapter, the first will indicate some of the literature on the relationship between risk-taking and motivation; the second section is allotted to group differences, while the third will discuss some of the findings regarding sex differences in risk-taking. A fourth section will review the nature of reward and its effects and the last section will deal with the literature on chance behavior following success or failure on previous trials.

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Risk-taking and motivation

There is considerable evidence to indicate that there is a relationship between motivation and risk-taking. For example, Atkinson (1957) discusses individual differences in the motive to achieve success and the motive to avoid failure in competitive achievement

situations. He concludes that persons in whom the achievement motive is strong prefer intermediate risk while those with strong motive to avoid failure prefer either very easy and safe tasks or very difficult and speculative tasks. The implication here is that the easy task poses fewer chances to lose and the very difficult task provides the opportunity to place responsibility for failure on the task rather than on oneself.

Supporting this view, Pettigrew (1958) divides risk-takers into two opposing groups, broad categorizers who risk negative instances in order to include a maximum of positive instances, and narrow categorizers who exclude positive instances in order to reduce the risk of being wrong.

Weir (1967) confirms this view. Children with a high level of motivation to succeed present two types of response patterns: high level of aspiration and fear of failure. He suggests that these two "sets" may produce different types of problem-solving strategies, one aimed toward "achieving" and the other toward "not failing." This linking of level of aspiration and risk-taking strategies develops from an early study by Lewin, Dembo, Festinger and Sears (1944) which relates level of aspiration to past achievement and readiness to take risks. These factors are linked with seeking success, avoiding failure, and a cognitive factor of probability judgment.

Whether an individual sees himself as master of his fate or as being controlled by fate or luck or powerful others (Rotter, 1966)

will determine whether he perceives his success as determined by his skill or by chance. Strickland, Lewicki and Katz (1966) suggest that people who see themselves in control of their lives may try to outwit fate, be more daring, and less stably conservative. In addition, they postulate that persons who see outcomes as determined by factors outside their control may take the conservative path in the hope that fate will not be too unkind.

Differences in risk-taking among ethnic groups

The social attitudes which are pertinent to a study of risk-taking are those which are concerned with success, with activity versus passivity, with cooperation versus competition, and with control of reinforcement.

Kluckhohn and Strodtbeck (1961) indicate that American middle class parents are concerned with the performance of their children, and encourage achievement. The child is trained for independence of action and the display of initiative; competitive behavior is rewarded and success is acclaimed. On the other hand, they point out that the Mexican-American orientation toward activity is one of being rather than doing. The orientation toward nature is that of subjugation to rather than mastery over the environment. Madsen (1967) studied three Mexican sub-cultures, the middle class, urban poor, and rural poor, in a task utilizing the Madsen cooperation board. His findings indicate that both rural and urban poor favor cooperation and are reluctant to engage in competitive behavior.

In further studies, Madsen (1969) has compared cooperative and competitive behavior in children of Mexican cultural backgrounds and Anglo-American children and found that, in a forced choice between cooperation and competition, Mexican as well as Mexican-American children are more cooperative than Anglo-American children. One explanation given is that children with a Mexican cultural background are more avoidant of direct competitive behavior or conflict than are Anglo-American children.

Wasserman (1969) examines the extent to which preschool children value success, task completion, competition and expertise seeking, using a picture instrument to portray the above values. Significant differences between groups were found, with Anglo children making choices indicating that they valued competition, task completion, and expertise seeking more often than did the Negro or Mexican-American child.

An investigation by Hertzig, Birch, Thomas and Mendez (1968) compares lower class Puerto Rican children with middle class white children on cognitive response patterns and their findings support their hypothesis that there is an ethnic base for these cognitive response patterns. The tendency of the Puerto Rican child to use passive and silent unresponsiveness when faced with a cognitive demand differs from the active, verbal response of the middle class white child. Preliminary data from studies at the UCLA Head Start Evaluation and Research Center suggest that many Mexican-American children respond to a challenging cognitive demand with passive and

silent unresponsiveness.

Lefcourt (1965) differentiaties between risk-taking behavior in skill and chance situations, with 60 Negro and white adults, all of whom were in a hospital for narcotic addicts. He suggests that the Negro seems more highly motivated to avoid failure in skill situations, and more motivated to achieve success in chance situations, with the Negro exhibiting more cautious behavior in a skill situation than does the white adult, but less caution in a chance situation.

Frazier (1962) in a sociological analysis of the emerging Negro middle class talks at length of the Negroes' "obsessive gambling."

Sex differences

A number of studies have found differences between the sexes in risk-taking. For example, Crandall and Rabson (1960) find that boys six-to-eight years of age choose previously failed tasks more often than do girls in this age group. The three-to-five year olds do not exhibit this sex difference, however. Fay (1967) finds that four year-old boys score significantly higher than do girls in a risk-taking task. Kass (1964) finds the same difference at ages 6, 8, and 10 years. Sex differences are also in evidence in the way people take risks. In risk-taking, Pettigrew (1958) finds that males are broader categorizers than are females; the broad categorizer is defined as one who risks the inclusion of negative instances in order to ensure the inclusion of maximum positive positive instances.

Nature of reward and its effects

Several investigations have been concerned with the differential effects of various reinforcements on learning. An early study by Abel (1936) compared the effects of different incentives on the task learning of a group of 9 and 10 year olds, and finds that the number of learning errors decreases more quickly under the most desirable reward conditions, less quickly for small rewards or for praise, and least quickly for no reward.

In another study comparing different reinforcements, Terrell and Kennedy (1957) studied the responses of four-to-five and eight-to-nine year old children on a discrimination task under varying reinforcement conditions and finds that candy is the most effective reward. Fischer (1963) investigated various reinforcement conditions in the acquisition of sharing responses by preschool children. His principal comparison was between material reinforcement in the form of bubble gum and verbal praise. In addition, however, marbles were given to the children as part of a learning-to-share task. He found both types of material reinforcement more effective than verbal praise, with bubble gum more reinforcing than marbles.

Chance behavior following failure or success

A number of investigators are concerned with the problem of response to a task following a previous failed or successful response on an item in the same task. Their studies do not support one another and the results appear somewhat contradictory. For example, Kessen and Kessen (1961) studied guessing behavior on a prediction of color

sequence on cards, with two groups of children. The younger group, median age 3 years, 7 months, tended to repeat the responses made on preceding trials whatever the result, while the older group, median age 4 years, 5 months, shifted their guessing behavior and alternated their response. In a study of Ss from three age levels (7, 13, and college age) and their performance in a three-choice probability learning task, Gruen and Weir (1964) found that the 7 year olds perform in a patterned, sterotypic manner, regardless of outcome. The older groups, on the other hand, vary their responses. In this study, 7 year olds responded in a similar fashion to that of the 3 year 7 month children in Kessen and Kessen's study. On the other hand, Greenberg and Weiner (1966) found no significant relationship between an individual's pattern of choices among risky alternatives and the sequence of outcomes preceding these choices.

SUMMARY

This review suggests that willingness to take risks is determined by such antecedents as level of aspiration, achievement motivation, and motive to achieve success or avoid failure, as well as a motive to include maximum positive instances or exclude negative instances.

The findings also indicate that Mexican-American lower class children are less likely to take risks than Anglo-American children. They tend to be passive acceptors rather than active doers. In a success task, they are more likely to be passive than to take active steps to ensure a desired end. Negroes, on the other hand, in

a situation involving chance, would be more likely to take higher risks, to exhibit less caution.

According to the evidence, at all ages boys are more likely than girls to take risks.

Results of several studies indicate that children learn best under material reward conditions, with candy or bubble gum serving as the most effective reinforcer, across a variety of tasks ranging from button pressing to the acquisition of sharing responses by preschoolers.

In the final area explored in this review of related literature, the nature of the risk-taking behavior following previous experience of failure or success, the evidence is not yet clear. However, it appears that younger children behave in a repetitive manner, choosing either the same item or a response previously used, or choosing on the basis of a self-imposed pattern, such as left, middle, right, or right, middle, left; older children, on the other hand, vary their responses. Others find no relationship betwen the patterns of response and the outcomes preceding these choices.

Thus the review of the literature indicates that there is a need to assess the role of ethnicity in risk-taking behavior and to explore the role played by various incentives in this interaction.

CHAPTER 3

EXPERIMENTAL DESIGN AND PROCEDURE

That social attitudes are subject to ethnic group differences seems to be well established. The purpose of the present study was to examine risk-taking behavior, as reflecting underlying social attitudes of different ethnic groups, under various reward conditions.

The major hypotheses of this study are that:

1) There is a difference in risk-taking behavior related to ethnic group differences such that Mexican-American preschool children take less chances on a risk-taking task than either Negro or Anglo-American preschool children;

2) This difference will be related to the reward at stake, with Mexican-American children taking fewer chances and Negro and Anglo children taking more chances when candy is the reward than when either beads or praise is the reward.

In addition, two supplementary hypotheses are that, across ethnic groups,

3) Preschool children take fewer chances following failure than following success; and

4) There is a difference in risk-taking related to sex regardless of stake involved, with boys taking more chances than girls.

Subjects

Because comprehension of English was necessary to ensure that all children understood the test instructions, only those who demonstrated comprehension in English were included in this study. Furthermore, in order to screen out those children for whom the risk-taking task would be too difficult, a criterion of either above 27 months on the Peabody Picture Vocabulary Test or 36 months on the Goodenough Draw-A-Man Test was used as a cut off point in selecting the participants.

The final subject population consisted of 164 children in nine Head Start classes in a large urban area. There were 60 Negro, 79 Mexican-American and 25 Anglo-American children, randomly assigned to one of three treatment groups. The age range was from 50 to 62 months. All children were from the lower socioeconomic population.

The Risk-Taking Task

The task through which risk-taking was assessed required the child to point to one of two pictures, the one that E was "thinking of." Children were told that if they guessed correctly they could receive a prize but if they guessed incorrectly they would have to give up one of their prizes. They were also told that they could choose not to take a risk and hence skip the trial. There were two sample trials and 20 scorable trials.

Materials

The test materials consisted of a series of 22 pairs of pictures.

TABLE 1

Means and Standard Deviations of the Scores on Peabody Picture Vocabulary Test for Three Treatment Groups by Three Ethnic Groups

	White			Negro			Mexican-American		
Treatment	N	Mean	SD	N	Mean	SD	N	Mean	SD
1	12	48.3	13.4	22	40.3	10.4	20	42.8	13.4
2	8	54.6	14.1	20	46.4	17.5	22	36.8	11.4
3	5	51.6	13.3	16	39.4	9.6	30	34.6	13.0

TABLE 2

Means and Standard Deviations of the Scores on The Goodenough Draw-A-Man Test for Three Treatment Groups by Three Ethnic Groups

	White			Negro			Mexican-American		
Treatment	N	Mean	SD	N	Mean	SD	N	Mean	SD
1	11	46.4	9.8	21	49.6	16.1	19	55.2	13.6
2	7	54.4	11.5	19	48.6	14.3	21	51.4	14.6
3	4	57.8	5.1	16	52.5	10.4	29	49.7	10.7

(See Figure 1 for sample set.) The pictures were black-and-white line drawings, 8" x 5 1/2", presented as a spiral-bound booklet. These pictures were such that the child's choice could be called correct or incorrect according to a predetermined schedule of rewards, independent of which picture was selected. The first two pages were practice items and were not scored.

Each of the three treatments used the identical pictorial materials and verbal statements, but different types of feedback. (See Appendix A for description of pictures and accompanying commentary.)

In Treatment I, children were given a stiff plastic string on which the rewards, brightly colored wooden beads, could be strung to make a necklace, which the child was allowed to keep.

For Treatment II, the prizes were Necco wafers. (All children were first asked if they liked this candy and uniformly responded in the affirmative.)

For Treatment III, instead of prizes the children were praised or censured according to the same reinforcement schedule.

Procedure

Each child was taken from his group to a quiet area in the Head Start classroom and presented with the task; E and S were seated opposite one another at a child-sized table. The Peabody Picture Vocabulary Test was administered, followed by the Goodenough Draw-A-Man Test. The Risk-Taking Test was presented only to those children who passed the comprehension criteria.

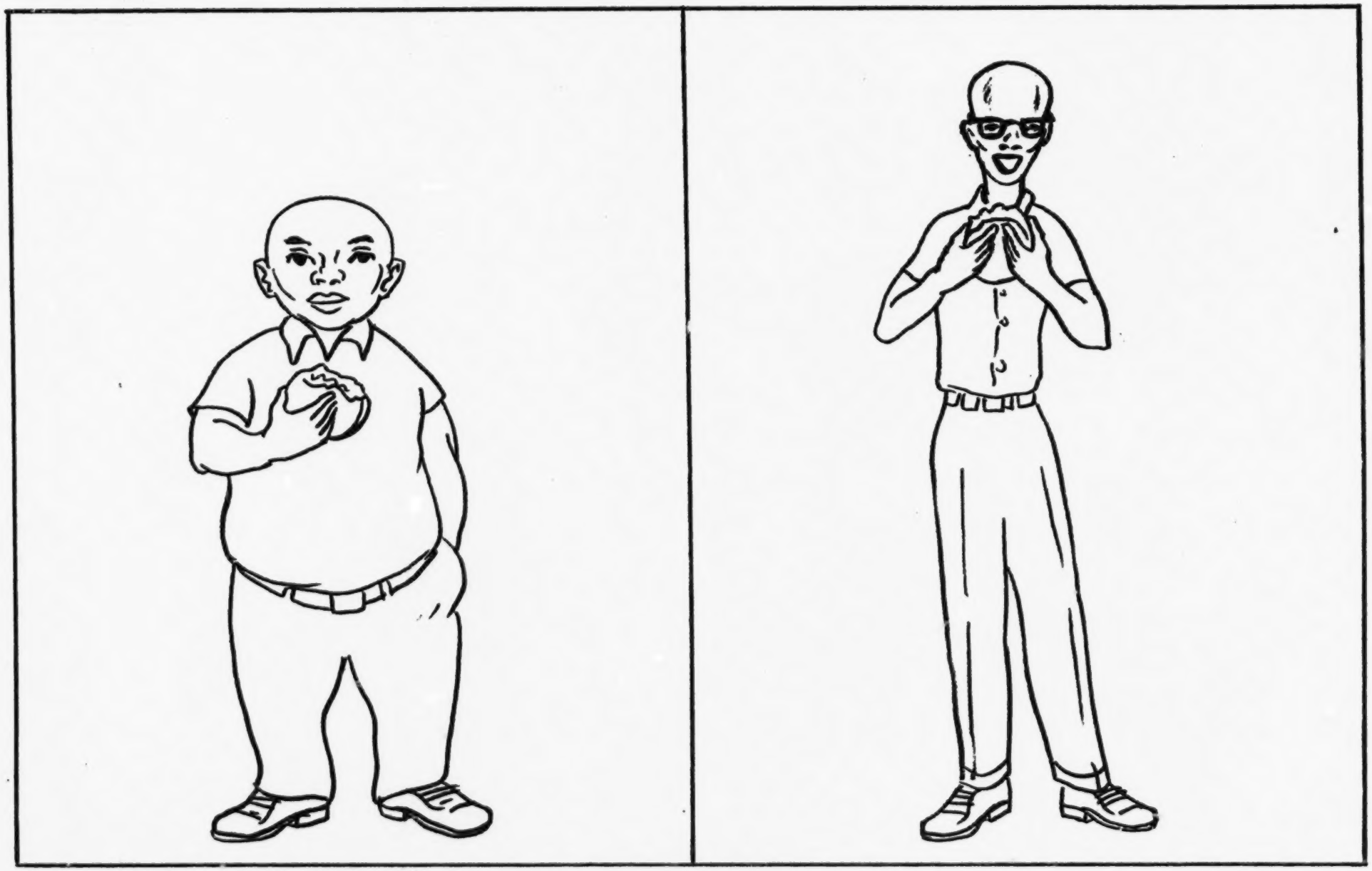


Figure 1. Sample Picture

For the Risk-Taking Test, children were told that they were going to play a "guessing game," they were to guess which of two pictures E was "thinking of," for each of the pages in the booklet. The instruction that they could win or lose was repeated with the presentation of each page. Further, at the beginning of each trial they were advised that they could either elect to "take a chance" or refrain from guessing. A statement equally applicable to both pictures was made and the child was asked to point to one of the two pictures, the one that E was "thinking of."

Scores were determined on the basis of number of trials guessed; if S "took a chance" on every possible trial he could attain a maximum of 20 points, with one point deducted for each trial on which he chose not to guess. Thus, a high score indicated a high risk-taker.

Treatments

Treatment I. The Ss in this group were told that, as part of the guessing game they were about to play, they were going to make a necklace. E gave each child in this group a plastic string and two beads and invited him to put the beads on the string to start the "necklace." Help in stringing the beads was given where necessary. Ss were advised that each time they guessed right they would receive another bead for their necklace, but each time they guessed wrong they would have to return one of the beads to E. In addition, they were informed that they could keep the necklace at the end of the game. E then presented the two sample pages followed by the 20 test pages, one at a time, to S. For Figure 1, the commentary was, "I'm

thinking of a man who likes to eat hamburgers." Regardless of which picture the child selected, he was then told, "No, you lose. I was thinking of this one." For each of the pages, S was told he had won or lost, according to the schedule, and was asked if he wanted to take a chance on the next page. If he chose to "take a chance" the next item was presented. The process was repeated for each set of pictures.

Treatment II. The only difference between Treatment I and Treatment II was in the type of incentive used. Here the reward was candy rather than beads.

Treatment III. In this treatment, no material reward was given. The materials and presentation were the same, but instead of being given a bead or candy when he guessed right, each S was given the social reward of praise (e.g. "good" or "very good"). When he guessed "wrong," he was told "too bad" or "you lose."

Risk-taking following success or failure

A relevant measure of risk is behavior following a failure. Thus, Hypothesis 3 predicted that children take less risks following failure than they do following success. To thest this hypothesis, a difference formula was used. A list of the right and wrong sequence used with the pictures is given in Table 3, together with a listing of the reward status, the number of prizes (beads or candy) S had at each steop in the sequence, as well as the gain or loss for that trial.

TABLE 3

Predetermined Schedule of Wins and Losses

With Reward Status After Each Trial

(S begins with 2 prizes)

Picture Set	Response	Reward Status	
1	Right	+1	3
2	Right	+1	4
3	Wrong	-1	3
4	Wrong	-1	2
5	Right	+1	3
6	Wrong	-1	2
7	Right	+1	3
8	Right	+1	4
9	Wrong	-1	3
10	Wrong	-1	2
11	Right	+1	3
12	Wrong	-1	2
13	Right	+1	3
14	Right	+1	4
15	Wrong	-1	3
16	Wrong	-1	2
17	Wrong	-1	1
18	Wrong	-1	0
19	Right	+1	1
20	Right	+1	2

Design of the Study

The basic experimental design was a 3 x 3 analysis of variance with three ethnic groups: 1) Mexican-American, 2) Negro, and 3) Anglo-American; and three treatment groups: 1) bead reward, 2) candy reward, and 3) social reward, or praise.

Hypothesis 1 was tested by assessing the significance of the main effect for ethnic grouping;

Hypothesis 2 was tested through the interaction between groups and treatments;

Hypothesis 3 was tested by evaluating the significance of the main effects of success-failure differences;

Hypothesis 4 was tested by assessing the significance of the main effect for sex.

The assumption was made that all Ss came from the same socio-economic population since they were all Head Start children.

CHAPTER 4

RESULTS

Analyses of test scores in risk-taking behavior were carried out and the findings examined in terms of each of the hypotheses in turn.

The means and standard deviations on the risk-taking task, by treatment and ethnic group, presented in Table 4, show only small differences in mean scores among ethnic groups. Thus it is not unexpected that results of the analysis of variance performed on the risk scores show no significant ethnic group differences ($F=1.1$, $df=2/155$). Thus hypothesis 1 was not supported.

Returning to the data in Table 4, it is interesting to note that Mexican-American children do indeed have the highest scores in Treatment I and lowest scores in Treatment II, whereas both Negro and Anglo-American children have their highest scores in Treatment II. This pattern of scores is in the direction predicted in Hypothesis 2, which states that Mexican-American children take fewer chances, while Negro and Anglo-American children take more chances, when candy is the reward than when either beads or praise is the reward. This interaction between treatment and ethnic group was tested in the analysis of variance presented in Table 5 and found to be significant at .05 level ($F=2.43$, $df=4/155$). Figure 2

TABLE 4

Means and Standard Deviations of the Risk-Taking Scores

For Three Ethnic Groups on Three Treatments

	White			Negro			Mexican-American		
Treatment	N	Mean	SD	N	Mean	SD	N	Mean	SD
1	12	18.6	3.4	22	18.8	2.9	21	20.0	0.0
2	8	19.3	1.8	21	19.9	0.3	22	17.5	5.3
3	5	17.6	4.3	17	19.5	1.7	36	18.8	2.7
Total Subjects	25	18.5	1.8	60	19.7	5.0	79	19.0	4.4

TABLE 5

Analysis of Variance on Risk-Taking Scores

For Three Ethnic Groups on Three Treatments

Sources	df	MS	F
Treatment	2	2.5	0.3
Ethnic Group	2	9.4	1.1
Treatment x Ethnic Group	4	20.1	2.43*
Error	155	8.3	

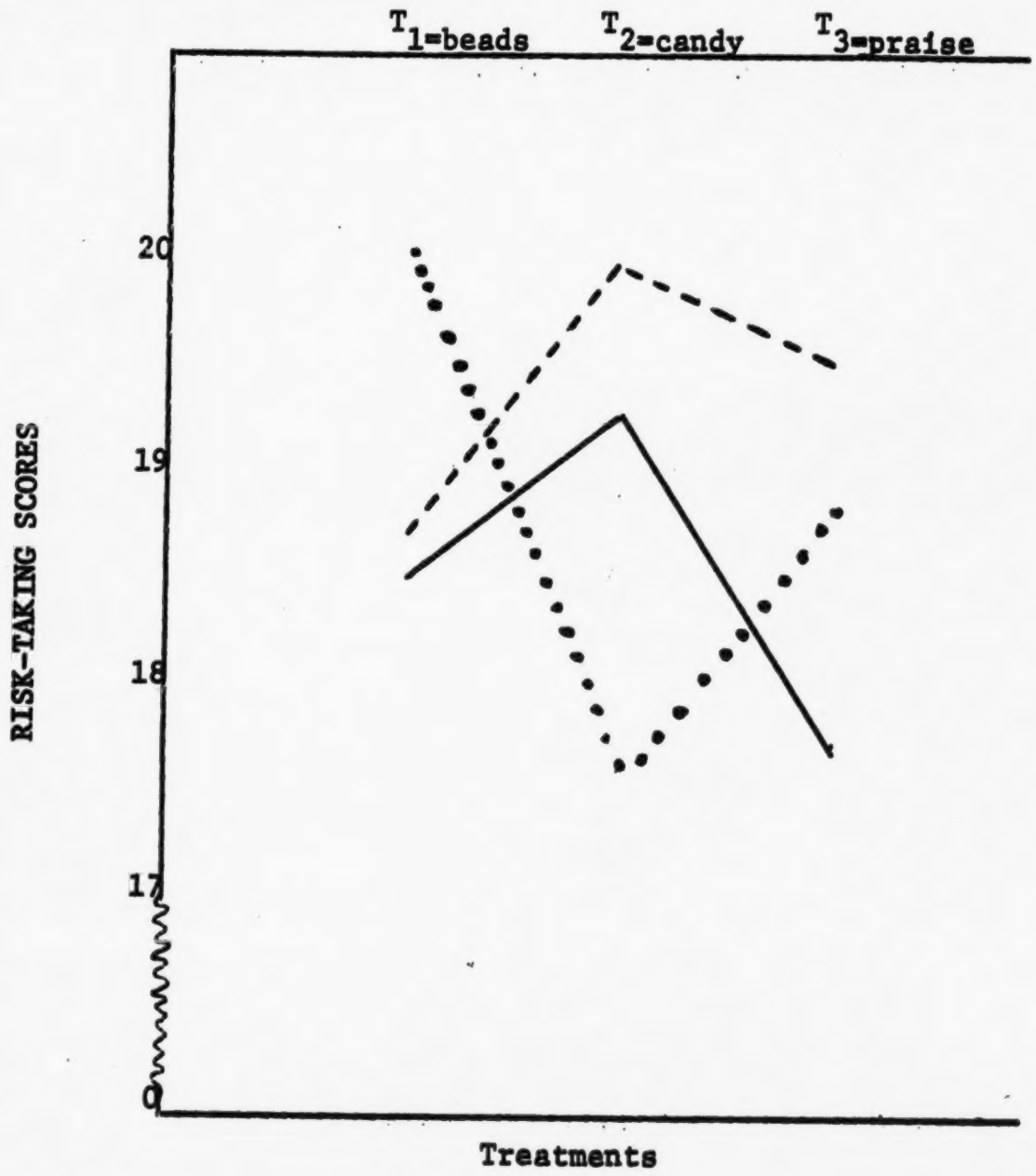
*p .05

graphically presents this interaction by way of mean scores for the three ethnic group by three treatment groups.

Turning to the hypothesis that preschool children take fewer chances following failure than following success, we note in Table 6 that the means of the responses were 9.7 and 9.6 respectively with corresponding SDs of .380 and .389. The significance of this difference was tested by a t test, using a difference formula since the two sets of scores were correlated. The resulting t of 1.4 is not significant. Kessen and Kessen's 1961 study indicated that younger children (43 months average) tended to continue a response rather than shift to another response, while the older group (53 months average) shifted their behavior and alternated responses. This is in line with the present study which showed no significant difference in the number of occasions on which children continued to take risks following failure compared to those following success. Gruen and Weir (1964), in a study with 7 year olds, report that children respond in a patterned manner independent of previous trials. The findings in this study suggest, too, that preschool children respond to each trial as though it were an independent event with no connection with previous successes or failures on the same task. It may be that four-year olds develop a "set" which they are unable to break even when faced with failure.

The prediction of Hypothesis 4, that boys would take more risks than girls, was not supported. Quite the contrary. The difference between boys and girls in risk-taking behavior on this test

Figure 2. Mean Scores of Three Ethnic Groups by Three Treatments on Risk-Taking Test



——— = Anglo-American

- - - - - = Negro

. . . . . = Mexican-American

TABLE 6

Means and Standard Deviations for

Responses Following Failure and Success

	Means	SD	t
Failure	9.7	.380	1.4
Success	9.6	.389	

just fell short of significance in the opposite direction, with girls showing higher risk scores than boys. Table 7 presents the means and standard deviations for these scores and Table 8 gives the analysis of variance for sex differences on risk-taking scores across treatment and ethnic groups.

To sum up the results of this study, no reliable differenes were found among treatments, ethnic groups, or for behavior following failure or success, or between sexes. The predicted treatment by group interaction was significant, with risk scores for Mexican American children lower when candy was the reward, and Negro and Anglo-American risk scores higher when candy was the reward.

A major difficulty in testing the risk-taking hypotheses was that all children took fairly large amounts of risk, producing a limited range of scores. It may be that there was not sufficient risk at stake in the task selected to tease out underlying differences in risk-taking behavior among the three ethnic groups.

A number of methods for studying behavior in young children seem to be fairly effective. For example, the use of Necco wafers as an incentive has advantages over the usual M&Ms. The task used in this test was experienced, by the child, as interesting and involving above and beyond the usual advantage of removing the child from the group. The necklace made of the beads used as reward appears to be a useful addition as an incentive and should be useful in teaching concepts to young children.

TABLE 7

Means and Standard Deviations of the Risk-Taking Scores for Boys and Girls across Treatment and Ethnic Groups

	Boys	Girls
Sample Size	82	82
Means	18.6	19.3
Standard Deviation	3.7	1.7

TABLE 8

Analysis of Variance on Risk-Taking Scores for Boys and Girls across Treatment and Ethnic Groups

Sources	df	MS	F
Sexes	1	21.2	2.5 (n.s.)
Error	162	8.4	

The interaction effect of the incentives and ethnic groups suggests that a variety of rewards should be used in classrooms, particularly where children from differing backgrounds bring different value systems.

CHAPTER 5

CONCLUSIONS AND DISCUSSION

The central problem of this study was to investigate the relationship of ethnic group and type of reward upon risk-taking behavior. The results do not support the hypothesis that Mexican-American four-year-old Head Start children exhibit a more cautious risk-taking style than do Negro and white children from the same socioeconomic group.

When candy is the reward in comparison with beads or praise, Mexican-American preschool children exhibit more cautious behavior than the other groups. The evidence from Abel (1936), Terrell and Kennedy (1957) and from Fischer (1963), indicate that material reinforcement, especially candy, is the most meaningful reward to young children. Under the most meaningful incentive condition, then, the cautious behavior of the Mexican-American child contrasts more sharply with the more risky behavior of the Anglo-American and the Negro child (Treatment II). There appears to be a greater reluctance to lose candy on the part of the Mexican-American child, while the Anglo-American tries to get as much candy as possible. In other words, the motive to avoid failure seemed to be operative for the Mexican-American child while the motive to achieve success appeared to be operative for the other two groups.

In much of the risk-taking literature, with subjects older than preschool children, males are generally found to be higher risk-takers than females (Crandall and Rabson, 1960; Fay, 1967; Kass, 1964; Pettigrew, 1958). The results in this investigation demonstrate that this is not true with preschool children. In fact, girls were more apt to take risks than boys, with the difference just short of significance. This suggests that the increased risk-taking characteristic of older boys may be part of the sex-identification process, and is in the socially approved direction for males. Another possible explanation is that girls, being more compliant and more desirous of pleasing the examiner, were willing to go on taking chances.

An examination of the differences between responses following success and those responses following failure indicate that preschool children do not differentiate on this basis. Corroborating the findings of Greenberg and Weiner (1966), Kessen and Kessen's (1961) study show no significant relationship between an individual's pattern of choice among risky alternatives and the sequence of outcomes preceding these choices.

It is unfortunate that the task selected was not sensitive enough to establish either treatment or ethnic differences. Because of the young age of the subjects, a game-like and informal situation was thought to be desirable. The risks involved were thus comparatively minor and non-threatening. Subsequent studies in this field should devise tasks resembling the structured school setting in order to test the hypothesis more realistically.

This study was undertaken to examine the basis of the unresponsive classroom behavior noted with Mexican-American children. It was postulated that Mexican-American children hesitate to answer questions posed by teachers because they are afraid to take the chance of being wrong. Thus it was assumed that a motive to avoid failure was operative, and that this was related to ethnic differences in risk-taking behavior.

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APPENDIX

Instructions for Administering the Risk-Taking Test: Treatment I

Hi! We're going to play a new game. We're going to make a necklace. It's a prize necklace and you can keep it at the end of the game and take it home. (Hand string to child.) We're going to play a guessing game and every time you guess right, I'll give you a bead to put on your necklace. You'd like that! But sometimes you will guess wrong. We all make mistakes sometimes.....and when you guess wrong, I get to take one of your beads. Here are two beads to begin the game.

Listen carefully now and I'll show you how to play the game. Look at these pictures. (A and B are practice items. The first picture described is on the left, the second on the right side of the page.)

Description of Pictures	Commentary
A. Three ducklings following a large duck through grassy area; one duckling following large duck through water.	I'm thinking about one of these. I'm thinking of the biggest family. Point to the picture I'm thinking of. Good, that's right. You pointed to the biggest family. Here's a bead to string on your necklace. (If child is not able to string bead, string it for him.) Now, let's try the next one. Listen carefully and see if

Description of Pictures	Commentary
	you can guess which one I'm thinking of.
B. Fat man holding a hamburger; think man holding a hamburger.	I'm thinking of a man who likes to eat hamburgers. No, you lose. I was thinking of this one. (Point to the picture that the child did not guess.)[1] Of course, if you want to, you can just keep the beads you have and not guess for this turn. I'm thinking of one of these pictures. Do you want to try to guess which one I'm thinking of and win another bead if you're right? Remember, if you make a mistake, I get to take one of your beads.
1. A boy and a girl turning a rope, another boy standing on the side, crying; two girls turning a rope while another girl jumps over it, boy standing on the side, crying.	I'm thinking of the picture of someone who is crying because he wants to jump rope. Right! You guessed the right one. Here's another bead.
2. A boy and a girl standing, looking at a book together; a boy and a girl sitting on the floor, working a puzzle together.	I'm looking for someone who is playing a game with a girl. Good, you're right. Here's another bead.
3. Mother cooking at a stove and baby is sitting on the floor, holding a spoon, a dish beside him on the floor; Mother cooking at a stove and baby is sitting in a high chair, holding a rattle. A dish is on the high chair tray.	I'm looking for a baby who is eating. You lost. You have to give me a bead.
4. Dog with collar around neck, chain attached, going under a fence; dog, nothing around neck, jumping over a fence.	I'm looking for a dog who ran away. No, too bad. You have to give me one of your beads.

[1]This statement was repeated for each of the subsequent items 1-5.

Description of Pictures	Commentary
5. A boy pulling an empty wagon; a boy pulling a wagon, in which is seated another boy.	I'm looking for a boy who is pulling a very heavy wagon. Very good. Here's another bead.
6. Girl in dress-up clothes, wearing grown-up high heels and a lady's hat; girl jumping rope.	I'm looking for the girl who likes to play. No, that's wrong. Give me a bead.[2] Do you want to try to guess this turn? Do you want to take a chance?
7. Man behind a counter; woman behind a counter. A box is on the counter.	I'm thinking of someone who is waiting to sell something. That's good. Here's a bead.
8. Boy holding an ice cream cone in one hand and bouncing a ball with his other hand; boy holding a large cookie in one hand, and is skating.	I'm thinking of someone who is playing with something. That's right. Here's a bead.
9. Boy watching a milkman ring a doorbell; dog watching a milkman ring a doorbell.	I'm thinking of someone who is watching the milkman. You lost. Give me a bead.
10. Girl swinging a bat while the ball goes through a window; boy swinging a bat while the ball goes through a window.	I'm thinking of someone who just broke a window. You lose again. Give me a bead.
11. Girl running and another girl watching her; girl walking.	I'm looking for a girl who is late to school. That's right. Here's a bead.
12. Woodman chopping a tree, three logs on the ground nearby; woodman standing, three logs on the ground nearby.	I'm thinking of someone who chopped down a tree. Oh no, you're wrong. Give me a bead.
13. Woman walking in the rain, carrying an umbrella; woman walking in the rain, not carrying an umbrella.	I'm looking for someone who is dressed for the rain. Good, you won a bead.

[2]This statement was repeated for each of the subsequent items 6-20.

Description of Pictures	Commentary
14. Boy flying a kite and running across a road, his dog chasing him. A car has just gone by; boy flying a balloon and running across a road, his dog chasing him. A car is coming.	I'm looking for a boy who could get hurt. That's right. Here's
15. Three children dressed in street clothes, holding gaily wrapped packages; two children wearing grown-up hats, shoes, and dresses, holding gaily wrapped packages.	I'm thinking of some children who are going to a special kind of party. That's right. You won a bead.
16. Child digging in a sandpile, near a pail and a doll; child digging in a sandpile, near a pail and a ball.	I'm looking for a girl who likes to bury things in the sand. That's not it. Give me a bead.
17. Dog running downhill after a ball; dog running downhill chasing a cat.	I'm looking for a dog that is chasing something. No. You have to give me a bead.
18. Squirrel standing on the ground, holding a leaf in his paws; squirrel standing on the limb of a tree, holding a nut in his paws.	I'm looking for a squirrel who has found something he needs. Too bad. Give me a bead.
19. Boy and girl climbing a jungle gym; girl sitting on the ground near jungle gym.	I'm looking for a girl who likes to jump. No. Give me a bead.
20. Boy holding an apple in one hand and an ice cream cone in the other, watching a ferris wheel; boy holding an ice cream cone in each hand, watching a ferris wheel.	I'm thinking of the boy who is waiting to give his friend an ice cream cone. Very good. Here's a bead. The game is finished.

Instructions for Administering the

Risk-Taking Test: Treatment II

Hi! We're going to play a new game. It's a guessing game and every time you guess right, I'll give you a candy. You'd like that! But sometimes you will guess wrong. We all make mistakes sometimes.. .... and when you guess wrong, I get to take one of your candies. At the end of the game, you keep all the candies you have then. Here are two candies to begin the game.

Listen carefully now and I'll show you how to play the game. Look at these pictures.

This treatment was identical to Treatment I, except that where the child was given a bead, the child is given a candy.

Instructions for Administering the

Risk-Taking Test: Treatment III

Hi! We're going to play a new game. Here is how we play the game. I'll show you two pictures and I'm going to think of one of them. See if you can guess which one I'm thinking of.

Listen carefully now and I'll show you how to play the game. Look at these pictures.

The pictures and commentary were identical to Treatments I and II. Instead of being given beads or candy, the child was told, "good" or "very good" when he was correct, or "no, you lose" when he was incorrect.